NUCLEAR REACTIONS GROUP LAB HALF LIFE ANALOG

 PURPOSE: To provide a representation to help in the understanding of half-life and radioactive decay.

MATERIALS: plastic container with lid, “M & M’s”, graph paper, ruler and pencil

PROCEDURE: 1. Make a data chart on unlined paper with sections for shake number, pieces removed, pieces remaining and total pieces.

2. Place the “M & M’s” in the plastic container and secure the lid. Gently shake the container for 20 seconds by rolling it over and back. Open the container and remove all the pieces with the “M” showing. Place the pieces on a clean paper towel; do not put them back into the container. Count these pieces and record the number.

 3. Repeat step 2 until one or no pieces remain in the container. Record the number removed after each shake.

 4. Add all of the pieces removed to find the “Total Pieces” and subtract to find the “Pieces Remaining” after each shake.

 5. Graph the “Pieces Remaining” versus the “Number of Shakes” and draw a smooth line that best fits the plot points. Explain the significance of the line formed on the graph.

 6. Calculate the percent of remaining “M & M’s” removed after each shake. Explain any trends that appear in the calculated values.

 7. Define half-life and explain how each shake represents a “half-life” for the “M & M’s.”

 8. Compose a general statement from the lab data to explain radioactive decay.

9. Compare and contrast the licorice half-life with the “M & M’s” half-life.

 10. Share and consume or dispose of the half-life particles, put your container away and staple your lab report to the back of this lab sheet and place it in the gray tray.